

REMARKS

This submission is made in further response to the Advisory Action mailed November 4, 2005. The Examiner is thanked for the indication that claims 11-23 are allowed, and that claims 7 and 10 define allowable subject matter. The Advisory Action, however, continued to reject claims 1-6, 8, and 9. In response to the comments of the Advisory Action (p. 2), Applicants provide the following additional remarks.

As pointed out in the remarks of Applicant's October 19 Response at lines 1-5 on page 8:

Qian discloses substrate process methods, in which etchant gas is provided in the chamber while providing a cleaning gas (see col. 3, lines 48 to col. 6, lines 24). That is, cleaning process disclosed by *Qian* is performed during etching (i.e. the cleaning and the etching are simultaneously performed), rather than between etchings, as the Examiner asserted.

In short, Applicants respectfully submit *Qian* does not disclose/teach cleaning process is performed between etchings. The Examiner asserts that *Qian* teaches cleaning process is performed before the polymer layer form on the sidewalls of the feature such a degree as to induce lateral etching on the next film (relying on figure 3, col. 10, lines 57-67, and col. 11, lines 31-44), but this application of *Qian* ignores the claim limitation of "between etchings," as recited in claim 1 (lines 6-8). In fact, *Qian* clearly teaches cleaning and the etching are simultaneously performed (See figure 3, col. 10, lines 57-67, and col. 11, lines 31-44). Accordingly, the cleaning would not be performed between etchings, as claimed by claim 1.

Moreover, Applicants submit that *Qian* does not disclose/teach cleaning process is performed before the polymer layer form on the sidewalls of the feature such a degree as to induce lateral etching on the next film, as the Examiner asserted (see August 12 Office Action at lines 7-9 on page 6, which stated "...such a degree as to induce lateral etching on the next film

(selectively between layer (22) and layer (24), i.e. layer (22) etched faster than etching layer (24))”).

In fact, Qian teaches a layer 24 underlies a layer 22 having a relatively thicker portion and a relatively thinner portion. At a certain time during the etching process, the thinner portion is etched through and etching of the underlying layer 24 begins, while the thicker portion is still being etched. This requires that the layer 24 be etched sufficiently slowly relative to the rate of etching of the layer 22, that entire layer 24 below the thinner portion of the layer 22 is not etched through, before completion of etching the thicker portion of the layer 22 (See col. 2, lines 57-67). In short, higher selectivity between layer 22 and layer 24 can prevent the layer 24 below the thinner portion of the layer 24 from being etched through. Note that it is not relative to “lateral etching on the next or underlying film”.

Additionally, Applicant respectfully submits the features upon which applicant relies (i.e. the next film to be etched implies that a film to be formed on another/the next substrate to be fabricated) are recited in the rejected claim(s). In this regard, independent claim 1 recites:

1. A semiconductor process for controlling etching profile, comprising the steps of:
 - providing a plurality of substrates, in which a film to be etched and an overlying masking pattern layer are provided overlying each substrate; and
 - etching each of the films in sequence in a plasma chamber using the masking pattern layer as an etch mask, a polymer layer being deposited over the inner wall of the plasma chamber during the etching;
- wherein an intermediary cleaning process is performed in the plasma chamber between the etchings before the deposited polymer layer reaches such a degree as to induce lateral etching on the next film to be etched.

(Emphasis added.)

In short, each substrate comprises a film to be etched thereon. Moreover, the claimed feature of "etching each of the films in sequence" requires each substrate having a film to be etched thereon in sequence. Further, "the next film to be etched" is not a new feature in claim language, such as a film underlying the film to be etched on the substrate, but is a film to be etched formed on the another/the next substrate. For at least these reasons, in contrast to allegation of the Office Action (that Applicants are improperly relying on limitations from the specification), Applicants instead note clearly defining features of the claims, which patently define the claimed embodiments over the cited art.

Accordingly, for at least these reasons (and reasons previously argued in the file history of this application), Applicant respectfully submit that all claims define over the cited art of record.

CONCLUSION

In light of the foregoing, Applicants respectfully submit that all objections and/or rejections have been traversed, rendered moot, and/or accommodated, and that the pending claims are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

No fee is believed to be due in connection with this response. If, however, any fee is due, you are hereby authorized to charge any such fee to deposit account No. 20-0778.

Respectfully submitted,

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